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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,640	03/02/2007	Daniel Gower Davies	1063-001	9812

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WESTBOROUGH, MA 01581

EXAMINER
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WALCK, BRIAN D

ART UNIT	PAPER NUMBER
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1793

MAIL DATE	DELIVERY MODE
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04/24/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/577,640

**Applicant(s)**

DAVIES ET AL.

**Examiner**

Brian Walck

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2007.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 21-33 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 21-33 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 28 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 1/04/2007  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 22, 24, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 22, 24, and 26 recite the limitation "the chasses." There is insufficient antecedent basis for this limitation in the claims.

### ***Claim Rejections - 35 USC § 102/103***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 21, 22, 24, 25-27, 28, 30, 33 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over DE 19603540 A1 to Ehret (cited by applicant in IDS, references to pages and numbers refer to the English translation provided by applicant).

Ehret discloses a set of tiles, incorporating at least one conventional roof tile, at least one solar thermal tile and at least one photovoltaic tile (Ehret, page 2, lines 4-8, and Ehret page 2 lines 21-24),

wherein the at least one solar thermal tile (12) (numbers are references to Ehret figure 1 and Ehret page 3 line 31 – page 5 line 10) comprises a chassis on which is mounted a transparent portion (34) for permitting the entry of sunlight into a heating space (26) below the at least one solar thermal tile (12), the chassis being formed separately from said transparent portion (34), wherein the chassis comprises at least one protrusion (14, 16) on at least one edge and at least one aperture, said transparent portion being located to cover the at least one aperture, said protrusion (14, 16) being adapted to form an overlapping relationship with a second tile (12) when correctly mounted adjacent thereto,

wherein the at least one solar thermal tile has a tile width which is a multiple of the width of the at least one conventional roof tile (the solar thermal tile would inherently have a multiple of the width of the at least one conventional roof tile, just not necessarily an integer multiple of the width; also Ehret page 2 lines 21-24 suggests that the dimensions of the solar and thermal tiles are integer multiples of the conventional roof tile),

and wherein the at least one photovoltaic tile (52) (numbers are references to Ehret figure 2 and Ehret page 5 lines 21-32) comprises a photovoltaic cell, a chassis which is substantially identical in external appearance to that of the at least one solar thermal tile (compare the appearance of figure 1 and figure 2) and a photovoltaic laminate (52), said photovoltaic laminate being mounted in substantially the same position on the photovoltaic tile chassis as the transparent portion on the solar thermal tile chassis (compare the position of 34 from figure 1 with 52 from figure 2).

Regarding claim 21, Ehret explicitly discloses all of the limitations of claim 1 with the possible exception of whether the solar thermal tile, conventional roof tile, and photovoltaic tile are all present together. Ehret, page 2, lines 4-8, and Ehret page 2 lines 21-24 appears to state that all three types of tiles can be present together on the same roof, which would anticipate instant claim 21. In the alternative, it would be obvious to one of ordinary skill in the art at the time the invention was made to provide all three tiles together in Ehret in order to provide electrical energy, hot water, and conventional roofing protection to the same building.

Regarding claims 22 and 25, Ehret discloses that the chasses can be aluminum foam sheets (Ehret, page 1, line 13), which are non-transparent and metal.

Regarding claim 24, Ehret discloses that the chasses are moulded components (Ehret, page 1, line 11).

Regarding claim 26, Ehret discloses that the chasses can be aluminum foam sheets (Ehret, page 1, line 13), and the chasses of Ehret are folded (see figures 1 and 2), thus the chasses of Ehret comprise folded sheet metal.

Regarding claim 27, Ehret discloses that the transparent portion has peripheral edges, and the solar thermal tile chassis is arranged to support the transparent portion at said peripheral edges (Ehret, figure 1)

Regarding claim 28, Ehret discloses that the transparent portion comprises sheet material (Ehret, figure 1).

Regarding claim 30, Ehret discloses that each chassis further incorporates a rear overlap surface, the rear overlap surface being formed to support a third tile placed

above the at least one solar thermal tile and/or the at least one photovoltaic tile (Ehret, figures 1 and 2).

Regarding claim 33, Ehret discloses that the roofing tiles of Ehret can be mounted on the top of a building (Ehret page 1, lines 3-5) and that a fluid heating system is provided below the heating space of the solar thermal tiles (Ehret page 3, lines 1-7).

***Claim Rejections - 35 USC § 103***

8. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19603540 A1 to Ehret (cited by applicant in IDS) as applied to claims 21, 22, 24, 25-27, 28, 30, 33 above.

Regarding claim 32, Ehret does not explicitly disclose that the solar thermal tile has a width that is four times the width of the conventional roof tile. However, where the only difference between the prior art and the claims is a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device is not patentably distinct from the prior art device (see MPEP 2144.04 IV)

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19603540 A1 to Ehret (cited by applicant in IDS) in view of US 5,022,381 to Allegro (cited by applicant in IDS).

Ehret does not explicitly disclose that the chasses of the tiles is plastic.

Allegro discloses a set of tiles comprising solar thermal tiles, photovoltaic tiles, and conventional roofing tiles wherein the chasses of the tiles is made of plastic (Allegro, abstract).

Regarding claim 23, it would be obvious to one of ordinary skill in the art at the time the invention was made to make the chasses of the tiles of Ehret out of plastic as taught by Allegro. The motivation for doing so is that Allegro recognizes that plastic is a suitable material for the construction of roofing tiles (see MPEP 2144.07).

10. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19603540 A1 to Ehret (cited by applicant in IDS) in view of US 5,573,600 to Hoang (cited by applicant in IDS).

Ehret does not explicitly that the transparent section is made out of polycarbonate material.

Hoang teaches a solar thermal tile with a transparent protective cover sheet made out of polycarbonate (Hoang, column 2, lines 61-62).

Regarding claim 29, it would be obvious to one of ordinary skill in the art at the time the invention was made to make the transparent section of Ehret out of polycarbonate as taught by Hoang. The motivation for doing so is that Hoang recognizes that polycarbonate is a suitable material for the transparent section of solar thermal tiles (see MPEP 2144.07).

11. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19603540 A1 to Ehret (cited by applicant in IDS) in view of US 6,201,179 to Dalacu.



Ehret does not explicitly disclose that the chassis of the photovoltaic tile further comprises at least one hole to allow airflow.

Dalacu discloses photovoltaic tiles with holes in the chassis of the photovoltaic tiles to allow for cooling of the solar cells (Dalacu, column 8, lines 62-67).

Regarding claim 31, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the chassis of the photovoltaic taught by Ehret such that there are holes in the chassis as taught by Dalacu. The motivation for doing so would be to provide airflow to cool the solar cells (Dalacu, column 8, lines 62-67).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Walck whose telephone number is (571)270-5905. The examiner can normally be reached on Monday-Friday 9 AM-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/  
Supervisory Patent Examiner, Art  
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